REMARKS

Claims 56-88 are currently pending in the present application, including independent claims 56, 77, and 85. Independent claim 56, for instance, is directed to a breathable film comprising a blend of a thermoplastic polymer, a filler, and nanoparticles. The nanoparticles have a diameter of less than about 500 nanometers and are selected from the group consisting of silica, alumina, titanium dioxide, gold, zinc oxide, polystyrene, and combinations thereof. The nanoparticles are modified with a metal ion to form modified nanoparticles. The modified nanoparticles comprise a negative first Zeta Potential from about -1 to about -50 millivolts and a second Zeta Potential being at least about 5.0 millivolts higher than said negative first Zeta Potential.

Claim Rejections – 35 USC § 112

In the Office Action, previous claims 26 and 36 were rejected under *35 U.S.C. § 112*, second paragraph as being indefinite for the terms "less than about" and "at least about." Applicants have cancelled previous claims 26 and 36. The terms "less than about" and "at least about" have been removed from the newly presented claims.

Claim Rejections – 35 USC § 102

In the Office Action, previous claims 26, 38-41 and 49 were rejected under *35 U.S.C. § 102(b)* as being anticipated by U.S. Patent App. 2002/0151634 to Rohrbaugh et al. Present independent claims 56, 77, and 85 include the limitations that the film is breathable[1] and comprises a filler. As correctly noted in the Office Action (at page 8, line 1), Rohrbaugh et al. does not teach a composition comprising a filler or the WVTR

[1] Note Applicants' specification defines "film" as a breathable film. Applicants have incorporated "breathable" into the claims for clarification.

of the film (i.e., breathability). As such, Applicants respectfully request withdrawal of this rejection.

Claim Rejections – 35 USC § 103

In the Office Action, previous claims 34-37, 46-48 and 50 were rejected under *35 U.S.C. § 103(a)* as being unpatentable over Rohrbaugh et al. As noted above, present independent claims 56, 77, and 85 include the limitations that the film is breathable and comprises a filler. Rohrbaugh et al. does not teach or suggest a breathable film or a film that comprises a filler. As such, Applicants respectfully request withdrawal of this rejection.

In the Office Action, previous claims 27-33, 42-45, and 51-55 were rejected under *35 U.S.C. § 103(a)* as being unpatentable over Rohrbaugh et al. in view of U.S. Patent App. 2002/0004350 to Mormon et al. Rohrbaugh et al. is directed to coating compositions for modifying surfaces. The Office Action alleges that Rohrbaugh et al. discloses silica nanoparticles (present claims 56, 64, and 77). Furthermore, the Office Action alleges that it would have been obvious to one of ordinary skill in the art to obtain the claimed zeta potential values (present independent claims 56 and 76). Applicants respectfully disagree.

Independent claim 56 requires nanoparticles selected from the group consisting of silica, alumina, titanium dioxide, gold, zinc oxide, polystyrene, and combinations thereof. Rohrbaugh et al. fails to disclose or suggest such a limitation. The Office Action points to ¶ [0046] of Rohrbaugh et al. to yield this limitation (i.e., silica nanoparticles). "Silica" nanoparticles are formed from silica (SiO_2). For example, Applicants disclose that a suitable silica nanoparticle is marketed under the tradename SNOWTEX® available from Nissan Chemical Industries. SNOWTEX®, for instance, is

colloidal silica having a particle size range of 1-100 nanometers. In contrast, Rohrbaugh et al. discloses the use of silicate clay, specifically LAPONITE™. LAPONITE™ is a synthetic layered silicate that resembles the smectite mineral hectorite in both structure and composition. Rohrbaugh et al. discloses that LAPONITE™ is a lithium magnesium silicate having the formula $[Mg_wLi_xSi_8O_{20}OH_{4-y}F_4]^{z-}$ wherein w=3 to 6, x=0 to 3, y=0 to 4, and z=12-2w-x. ¶¶ [0057] – [0058]. Thus, Rohrbaugh et al. fails to disclose nanoparticles selected from the group consisting of silica, alumina, titanium dioxide, gold, zinc oxide, polystyrene, and combinations thereof as required by independent claim 56.

Independent claim 56 additionally requires modified nanoparticles comprise a negative first Zeta Potential from about -1 to about -50 millivolts and a second Zeta Potential being at least about 5.0 millivolts higher than said negative first Zeta Potential. As disclosed in the specification, the Zeta Potential refers to the electrical potential, or electrokinetic potential, that exists across the interface of all solids and liquids. The nanoparticles of independent claim 56 have a first Zeta Potential and a second Zeta Potential after adsorption of the metal ion onto the nanoparticle. This relationship provides a measurement for determining the amount of adsorbed metal ions and a method for controlling the amount of odor adsorption.

Such a limitation can not be said to be obvious from Rohrbaugh et al. First, as noted above, Rohrbaugh et al. fails to disclose the claimed nanoparticles. Thus, the particles disclosed in Rohrbaugh et al. certainly can not be said to inherently comprise a negative first Zeta Potential from about -1 to about -50 millivolts. Additionally, a second Zeta Potential being at least 5.0 millivolts higher would not be obvious from the disclosure of Rohrbaugh et al. since the only mention of modifying nanoparticles is at ¶¶

[0066] – [0071] which disclose coating LAPONITE™ with functionalized charged molecules in order to enhance sheeting/wetting of the treated surface. On the contrary, Applicants modify the claimed nanoparticles in order to enhance adsorption of odorous compounds. One of ordinary skill in the art would not be motivated to modify the "hydrophilic enhancing" treatment of LAPONITE™ disclosed in Rohrbaugh et al. in order achieve an appropriate amount of metal ions adsorbed onto Applicants claimed nanoparticles (i.e., indicated by the second Zeta Potential) to sufficiently absorb targeted odors.

Independent claim 76 contains the limitation that the modified nanoparticles comprise a positive first Zeta Potential. Rohrbaugh et al. does not disclose or suggest such a limitation. Note that the only functionalized charged surface molecules disclosed in Rohrbaugh et al. include only cations (Ca^{+2}, Mg^{+2}, Ba^{+2}, Al^{+3}, Fe^{+2}, Fe^{+3}, and Cu^{+2}). Positively charged metal ions would not adsorb very efficiently onto a nanoparticle with a positive Zeta Potential as claimed by Applicants.[2]

Independent claim 84 requires nanoparticles selected from the group consisting of silica, alumina, titanium dioxide, gold, zinc oxide, polystyrene, and combinations thereof. As noted above, Rohrbaugh et al. fails to disclose or suggest such a limitation.

Mormon et al. fails to remedy any of the deficiencies of Rohrbaugh et al. noted above.

Thus, Applicants submit that independent claims 56, 76, and 84 define over the references either alone or any in proper combination. Furthermore, Applicants respectfully submit that, at least for the reasons indicated above, the dependent claims

[2] Thus, note that dependent claim 79 requires that the metal ion is selected from the group consisting of permanganate ion, chlorite ion, persulfate ion, and combinations thereof. These claimed ions all have a negative charge.

55-75, 77-83, and 85-87 also patentably define over the reference(s) cited. The patentability of the dependent claims, however, certainly does not hinge on the patentability of the independent claims. Some of the dependent claims may contain additional limitations that are not disclosed or suggested by the references. For instance, dependent claims 74 and 82 add the limitation that the metal ions are bonded to the nanoparticles via coordinate bonds, covalent bonds, or mixtures thereof to form the modified nanoparticles (See Spec., pg. 13, line 26-pg. 14, line 25). Dependent claims 75 and 83 add the limitation that the metal ions are coupled to the nanoparticles with an organofunctional silane to form the modified nanoparticles (See Spec., pg. 14, line 26-pg. 15, line 28). Dependent claim 78 adds the limitation that the nanoparticles are alumina nanoparticles. Dependent claim 79 adds the limitation that the metal ion is selected from the group consisting of permanganate ion, chlorite ion, persulfate ion, and combinations thereof. Dependent claim 80 adds the limitation that the metal ion is permanganate ion. The references, either alone or in proper combination, fail to disclose or suggest any of these limitations.

Double Patenting

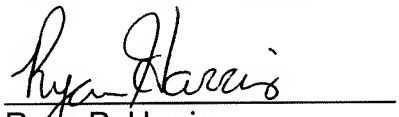
As a final matter, the provisional rejection of various claims over co-pending Application Nos. 10/686,933, 10/686,938, and 10/686,939 for obviousness-type double patenting is noted. Additionally, the rejection of various claims over U.S. Patent No. 7,141,518 for nonstatutory obviousness-type double patenting is noted. Applicants believe that the present amendments overcome these rejections. However, Applicants agree to submit terminal disclaimers for the above references, if necessary, at a time when the present application is otherwise in condition for allowance.

In summary, Applicants respectfully submit that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. Examiner Sasan is invited and encouraged to telephone the undersigned, however, should any issues remain after consideration of this Response.

Please charge any additional fees required by this Response to Deposit Account No. 04-1403.

Respectfully requested,

DORITY & MANNING, P.A.



Ryan P. Harris
Registration No. 58,662
P.O. Box 1449
Greenville, SC 29602-1449
Phone: (864) 271-1592
Facsimile: (864) 233-7342

Date: May 16, 2008